



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Kermicle et al.)
Serial No.: 09/821,879) Group Art Unit 1638
Filed: March 30, 2001) Examiner: David T. Fox
Title: Cross-Incompatibility Traits from)
Teosinte and Their Use in Corn)

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

37 C.F.R. SECTION 1.132 DECLARATION OF DR. JERRY L. KERMICLE

I, Dr. Jerry L. Kermicle, declare:

1. I received my B.S. degree in Plant Science from the University of Illinois, Urban in 1957 and my M.S. and Ph.D degrees in Genetics from the University of Wisconsin (hereinafter referred to as "University") in 1959 and 1963, respectively. I have been employed by the University since 1963. Specifically, I served as Assistant Professor of Genetics from 1963-1971, Associate Professor of Genetics from 1971-1977 and Professor of Genetics from 1977-1999. Since 1999, I have served as Professor Emeritus of Genetics at the University. An Abbreviated Vitae is attached herewith as Exhibit A.
2. I am one of the inventors of the above-identified patent application.
3. J.O. Allen and I are the authors of the article entitled "Cross-Incompatibility between maize and teosinte", *Maydica* 35(4):399-408 (1990) (hereinafter referred to as "Kermicle et al.").
4. I have read the Office Action mailed on June 17, 2003 in the above-identified application. I understand that claims 9-17, 21-26, 39-50 and 59-68 are rejected under 35 U.S.C. Section 112, first paragraph, as (1) containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention; and (2) not being enabled except for claims limited to maize plants containing the TCB trait from maize line W22-TCB (ATCC No. PTA-1601) and methods of using them. I also understand that claims 1-5, 9-17, 21-35, 39-50 59-66 and 69-72 are rejected under 35 U.S.C. Section 102(b) as being anticipated by Kermicle et al. These

same claims are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kermicle et al. taken with Nelson. Nelson simply provides a review of the work reported in Kermicle et al.

5. In Kermicle et al., Allen and I describe maize plants that exhibit a phenotype referred to as the teosinte incompatibility or the "TIC" trait. The two (2) components of the TIC trait described by Allen and I are (a) TIC-CP1 (*Gal-m*); and (b) TIC-CP2. Additionally, Allen and I further hypothesized that the TIC trait encompassed another factor or factors (see Kermicle et al. page 402, first full column, lines 5-6). What these factor or factors were was unknown to us at that time.

6. After several years of further experimentation and breeding with plants containing the TIC trait, certain maize plants were developed that exhibited a cross-incompatible phenotype. These plants exhibited a phenotype different from the phenotype exhibited by maize plants containing the TIC trait. This phenotype was referred to as the "teosinte crossing barrier" or "TCB" trait. Plants containing the TCB trait and exhibiting the TCB phenotype are the subject of the present patent application.

7. During the course of my work to characterize the TCB trait, I discovered that TIC-CP1 was not a component of the TCB trait. This finding was surprising in view of my earlier work (described in Kermicle et al.) in which TIC-CP1 was considered to be one of the two components of the cross-incompatibility barrier comprising the TIC trait.

8. In addition to discovering that TIC-CP1 was not a component of the TCB trait, it was further discovered the TCB trait was encoded by a gene cluster comprising a *Tcb* locus and at least one modifier gene. The *Tcb* locus governs recognition between pollen and pistil. My previous work in Kermicle et al. did not teach any modifier gene. Moreover, my previous work did not teach the silk effect function of the TCB trait. Finally, my previous work did not define any molecular markers that might be useful for identifying the TIC trait. In the present application, several molecular markers have been identified that allow one of ordinary skill in the art to identify plant material containing the gene cluster that encodes for the TCB trait using routine techniques known in the art.

9. I hereby declare that all statements made herein are of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dr. Jerry Kermicle

Date